2015

JUNE 2015
HILLSBORO, OREGON

ENVIRONMENTAL SUSTAINABILITY PLAN

Hillsboro
OREGON

Jackson Bottom Wetlands Preserve (cover) Rood Bridge Park in Hillsboro (current page)

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PGE Biglow Wind Farm

MAYOR'S MESSAGE

Jerry W. Willey, Mayor

June 2015

This Environmental Sustainability Plan represents a promise kept. The impetus to develop this cutting-edge sustainability initiative first arose on a large-scale in 2010, when community members identified it as a top priority during the ten-year update of our groundbreaking Hillsboro 2020 Vision and Action Plan. Soon thereafter, the City adopted internal sustainability goals and began the task of convening external partners to create a comprehensive sustainability plan by 2015.

The resulting *Hillsboro Sustainability Task Force* has been nothing short of dedicated and dynamic. Representing a variety of environmental, business and other community interests, the Task Force has assembled a focused, practical and meaningful set of actions that can be implemented, measured and, where necessary, refined in the years ahead – not just by the City, but by multiple community partner organizations. I am grateful to each member for the years of research, planning and deliberation they have contributed to creating an even brighter future for Hillsboro.

Sustainability Task Force

Ultimately, the Environmental Sustainability Plan is an investment in, and a commitment to, future residents. Hillsboro has a long tradition of not only planning for the future, but taking action to get us where our community wants to go. It is my hope that, through this plan and our follow-up actions, Hillsboro will remain a healthy and vibrant home for many generations to come.

Sincerely,

Jerry W. Willey
Mayor

ACRONYMS AND DEFINITIONS

AQI – Air quality index

BBTU – Billion British Thermal Units

CEWO – Clean Energy Works Oregon

CO^2e – Carbon Dioxide Equivalent

DEQ – Oregon Department of Environmental Quality

ESP – Environmental Sustainability Plan

GCPD – Gallons per customer per day

GHG – Greenhouse gas

HSTF – Hillsboro Sustainability Task Force

ICI – Industrial, Commercial and Institutional

RAW – Recycle at Work

SOV – Single Occupancy Vehicle

TMT – Total Metric Tons

VIC – Hillsboro 2035 Vision Implementation Committee

VMT – Vehicle Miles Traveled

Beneficial Use – Use of resources or materials other than disposal and which serves a useful purpose.

Energy – Output needed for building heating and cooling, powering of vehicles for transportation, interior and exterior lighting, and the resources needed to create that output.

Energy Retrofit – Modification to building or infrastructure systems to improve energy efficiency.

Environmental Sustainability – As defined by the Brundtland Commission, Sustainability is "Meeting the needs of the present without compromising the ability of future generations to meet their own needs."

Habitat Management – Land actively managed through existing program(s) with the specific purpose to benefit wildlife habitat.

Non-renewable Energy – A natural resource which is not reproduced, grown, generated, or used on a scale which can sustain the rate of its consumption. Fossil fuels such as coal, petroleum and natural gas are examples of non-renewable energy sources.

Recovery – Resources or materials that are recovered from the waste stream for reuse or recycling.

Renewable Energy – Renewable energy is derived from sources which are continually replenished such as sunlight, wind, rain, tides, waves, geothermal heat and other sources.

Resource Conservation – Preservation and conservation of natural resources to ensure the long term viability of ecosystems that support humans, wildlife and the economy.

Resource Recovery and Renewal – The capture and reuse or recycling of materials such as water, food waste, plastic, paper, metals and other materials for beneficial use other than disposal.

BACKGROUND

Hillsboro's Environmental Sustainability Plan (ESP) is the product of a five-year community engagement and stakeholder planning effort. Environmental sustainability formally emerged as a community priority during the ten-year update of the Hillsboro 2020 Vision and Action Plan in 2010. Through that outreach process, the public expressed strong support for expanding sustainability efforts beyond City Hall and into the broader community. In response, the City of Hillsboro launched and facilitated a public-private Sustainability Task Force (HSTF) in 2012. The HSTF, in turn, assumed responsibility for developing a formal plan and structuring and implementing community priorities related to energy, resource conservation, materials management and environmental education.

In 2013, the City initiated research and outreach to build the foundation for Hillsboro's next twenty-year community plan, Hillsboro 2035. Through that process, additional environmental priorities were identified and transferred to the HSTF for further review and development. While the Hillsboro Vision (Community Plan) sets a broad road map for building a more sustainable *community* (including social, economic and broader livability issues), the ESP is specifically focused on stewardship of the *environmental goals* therein.

Today, the ESP is both a stand-alone plan, and an integral part of the new Hillsboro 2035 Community Plan, where "Sustainability" is identified as one of the community's primary vision goal areas along with "Health, Wellness and Safety," "Education and Community Involvement," "Economy and Infrastructure," and "Livability and Recreation."

TASK FORCE

The Hillsboro Sustainability Task Force (HSTF) is comprised of stakeholders representing various community interests including local schools and government, business and industry of various sizes, and potentially-affected service providers. Many of the volunteer members also serve in sustainability leadership roles within their own organizations. The HSTF crafted the ESP over the course of ten meetings, along with considerable "homework" between those meetings, over a two-year period. In addition to the HSTF members, several others have contributed to the development of the ESP goals and metrics.

Beyond developing the ESP, the HSTF was asked to recommend a structure and process for facilitating, tracking and reporting progress. The resulting process was adopted as outlined in the following sections.

Sustainability Task Force

Sustainability Task Force Members 2013-2015

- **Jerry Willey**, Hillsboro Mayor
- **Ted Vacek**, HSTF Chair and Member, Hillsboro 2035 Vision Task Force
- **Melanie Adams**, Director, Hillsboro Building Department
- **Carol Brown**, Sustainability Manager, Portland General Electric
- **Lorena Colcer**, Youth Advisory Council
- **Elaine Cole**, Sustainability Coordinator, Portland Community College Rock Creek
- **John Elmers**, former Environmental, Health and Safety, SolarWorld
- **Brian Glazebrook**, Global Sustainability Manager, NetApp
- **Bob Grover**, President, Pacific Landscape and Hillsboro Chamber of Commerce
- **Kevin Hanway**, Director, Hillsboro Water and Joint Water Commission
- **Sharon McCarty**, Facilities Secretary, Hillsboro School District
- **Willy Paul**, Executive Director, Kaiser Permanente NW Region Capital Projects
- **Karissa Pavlik**, Youth Advisory Council
- **Carly Riter**, Northwest Regional Government Affairs Manager, Intel Corporation
- **Heather Robinson**, Hillsboro Citizen and VIC Member
- **Loren Rogers**, former Facilities Manager, Hillsboro School District
- **Bruce Roll**, Director of Watershed Management, Clean Water Services
- **Kimberley Sackman**, Environmental and Safety Specialist, Epson Portland
- **Stephanie Shanley**, Environmental Engineer, Intel Corporation
- **Carol Stroup**, former Sustainability Coordinator, Hillsboro School District
- **Peter Brandom**, City of Hillsboro (Coordinator)
- **Jason Robertson**, Consultant (Facilitator)

PLAN
CONTEXT

The Hillsboro ESP does not exist in a vacuum. It recognizes the scope and scale of what it intends to achieve. Like every community in the U.S., Hillsboro is a local community within a global environment. Beginning decades ago, Americans were encouraged to "think globally and act locally." This Plan honors that ethic with an understanding that local actions have the potential to not only improve livability in Hillsboro, but to positively contribute to the global environment. It also acknowledges that our local efforts are part of a much larger environmental and economic system, and there is much that cannot be affected locally. It strives to set an example for other communities and to demonstrate the powerful benefits of deliberate environmental sustainability action.

The goal of the ESP is to enhance sustainability outcomes through proactive collaboration with willing partners – Hillsboro has long demonstrated an ability and inclination to successfully engage and leverage local, regional, State and Federal partnerships to achieve its objectives. The ultimate goal is to identify and implement practical projects and policies that preserve and enhance the natural environment for the very long-term and to yield measurable results. This Plan builds upon the work of many businesses and individuals in Hillsboro addressing environmental sustainability, including the City of Hillsboro, which in 2010 established a comprehensive Sustainability Plan with long term goals.

In many ways, the ESP is the next step in a multi-generational commitment to *growing great things* in Hillsboro. Sustainability initiatives can do more than protect natural resources; they can help keep Hillsboro livable and prosperous by protecting the quality of our land, air and water. Solutions that result in fewer cars on the road not only reduce carbon emissions, they yield less congestion and better freight mobility. Vibrant natural areas and access to open space can be a powerful factor for people and businesses deciding where to live or invest. Effective use of natural systems in water treatment services can reduce infrastructure costs.

Ultimately, the ESP is a continuation of the way Hillsboro has always done business – by building community partnerships and finding shared opportunities to advance community priorities.

VISION STATEMENT

Hillsboro is a sustainable community that takes proactive steps to protect natural assets, minimize greenhouse gas emissions, and recover, recycle and renew resources. Residents, businesses and community institutions understand the link between economic prosperity and environmental health, and work collaboratively to maintain a thriving city for future generations.

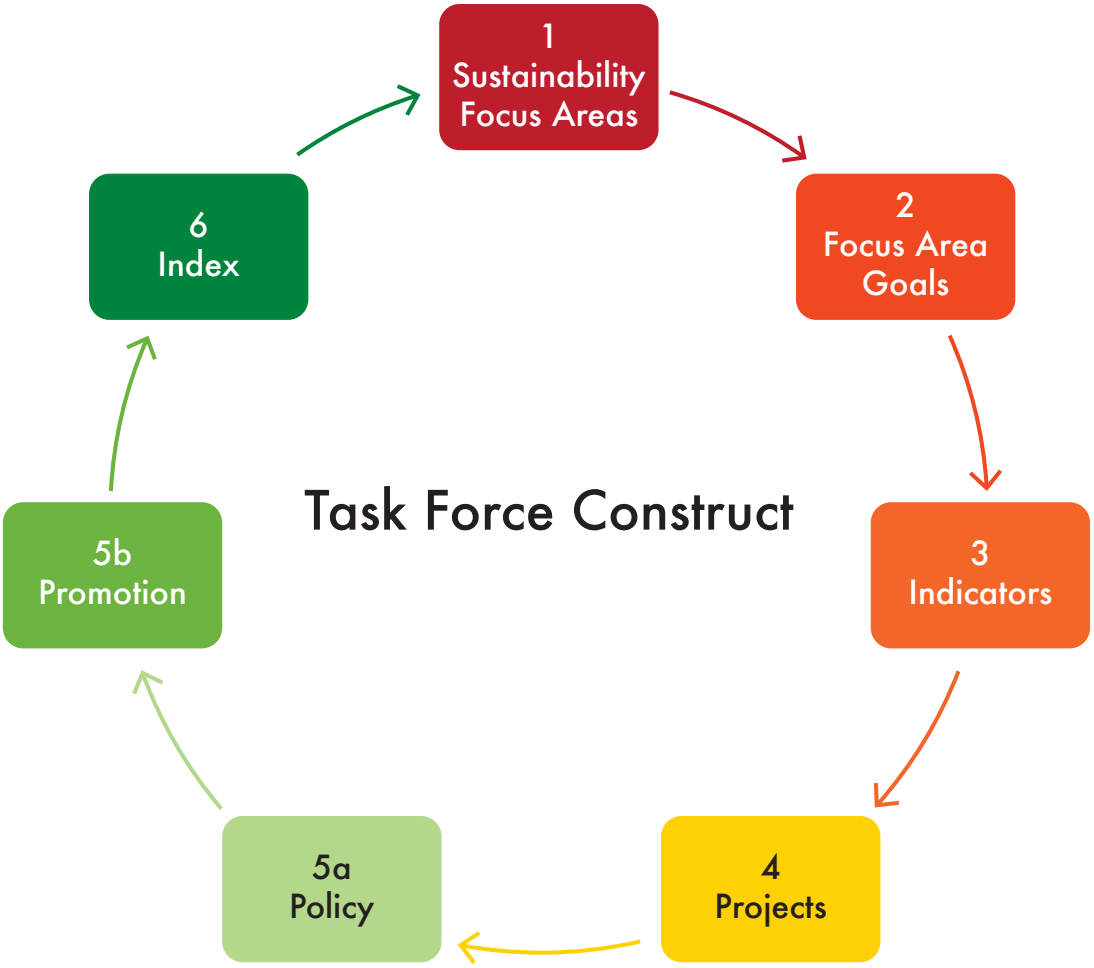
PLAN
CONSTRUCT

The ESP contains three primary goal areas and numerous – both existing and potential – specific actions to be carried out over the next five years. It is designed to be flexible and easily updated as new opportunities arise, additional implementation partners step forward and technological advances provide new approaches for achieving plan goals. Major goal areas include:

- Energy
- Resource Conservation
- Resource Recovery and Renewal

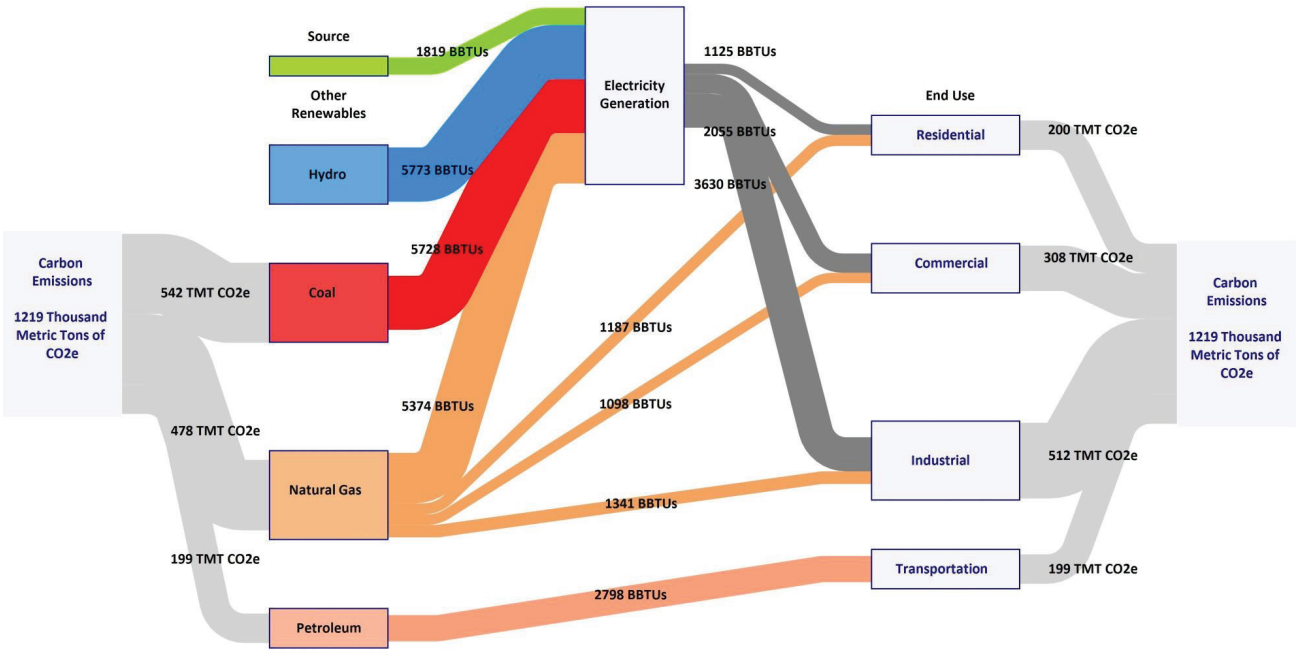
The following sections outline key indicators and targets for each goal area along with proposed projects and policies.

The work of the HSTF in developing the ESP has involved setting goals, developing measurable targets and indicators, identifying projects, considering policy where applicable, promoting best practices, and regularly reviewing progress.



GOAL AREA:
ENERGY

Estimated Hillsboro Energy Flow 2010



V.2 Completed July 27, 2012. Based on order-of-magnitude analysis by New Energy Cities, not intended as a precise greenhouse gas emissions inventory. Flows are proportionally sized. Boxes are proportionally sized where possible. Data sources: Portland General Electric (PGE) and Northwest Natural 2010 purchase data; Metro 2009 figure for daily VMT (adjusted for 2010 based on 2009-2010 population growth).
Other notes: Nuclear energy (via market purchase) accounts for less than 1 percent of PGE's resource mix and therefore does not show up on the Energy Flow graphic at this scale. Hillsboro's waste-related carbon emissions were calculated using the USEPA WARM model but were too low relative to overall community emissions to show up on the graphic at this scale. Note that this waste emissions analysis did not include an accounting of carbon emissions related to consumption of goods and services.

Hillsboro OREGON
New Energy Cities

The Energy Flow Map provides an estimate of energy used in Hillsboro as well as the resulting carbon emission impact, and helps graphically illustrate where to act as we move toward a new energy economy.

Overview

Energy fuels cars, furnaces, national economies. It also costs money, affects our lives, and sometimes makes headlines. Much of the energy that we use is derived from the burning of nonrenewable fuels. Concerns about costs, dependence on foreign supplies and environmental impacts are driving the need for improved efficiency in the use of oil and other nonrenewable fuels, and a shift to renewable energy sources such as solar, wind, hydropower, geothermal and biomass.

The world stands on the cusp of a major transition in how energy is produced, distributed, and utilized. There are growing opportunities to transition from an inefficient system dominated by a few centralized and polluting technologies to a much cleaner, smarter, diversified and efficient system. This transition will lead to new opportunities, including a cleaner energy system that is more resilient to natural and human disasters and, potentially, more beneficial to the local economy. Communities that embrace conservation and efficiency will have a competitive advantage over those that continue to assume an infinite and cheap supply of energy and natural resources.

While the Hillsboro community pursues a new path for energy use and generation that may serve as a model for other communities, it will largely measure its success based on how it improves the lives of its residents and how its actions will help preserve the City's resources for years to come.

Hillsboro's Energy Goals

- Reduce greenhouse gas emissions
- Reduce use of non-renewable energy resources
- Expand use of renewable energy resources to meet demand

Hillsboro's indicators and targets for energy include:

Indicator	Target	Target Year	Baseline	Baseline Year
1. Hillsboro Energy Map (2010 baseline)	50% reduction in non-renewable input-output sources	2035	17,526 BBTU's	2010
2. Residential energy consumption per capita	10% reduction 25% reduction	2020 2035	2,312 BBTU's	2010
3. # of residential energy retrofits	20% of CEWO-eligible single family homes	2020	40 retrofits/ 9,000 qualified residences	2012
4. % of industrial, commercial and institutional (ICI) customers that have participated in energy efficiency programs and net total energy savings by industry classification	Sustained annual increase in participation and energy use reduction by industry classification	N/A	TBD	TBD
5. % energy offset by renewable source purchases and on-site production	75% of total electricity used	2035	35.74%	2010
6. Mean travel time to work	20% reduction	2035	24.4 minutes	2010
7. Single occupancy vehicle (SOV) trips as % of all trips	30% reduction by 2035 (51%)	2035	73%	2010

Potential Projects and Policies

The following is a list of actions that implementation stewards may seek to pursue over the next five years:

- Update Hillsboro Energy Map
- Promote energy conservation programs on City website and other means
- Promote Portland General Electric (PGE) Energy Tracker for residential and small business
- Develop Home Energy Score pilot project
- Create repository of energy tools and information for homes and small businesses
- Provide education: demonstrate how to use retail sites to recycle light bulbs; energy efficiency demos at library, Lowe's, Home Depot, etc.

- Conduct focused campaign with Clean Energy Works Oregon (CEWO)
- Distribute energy efficiency information and resource links through City Building Department during inspections
- Promote the U.S. Department of Energy Better Buildings/Better Plants Challenge
- Develop business education program that focuses on small/medium business and peer to peer outreach
- Identify and document industry classifications and energy use data patterns
- Continue green power purchases
- Convert biogas from wastewater treatment to natural gas for fleet and other energy use
- Participate in U.S. Department of Energy Rooftop Solar Challenge
- Develop or support community solar program
- Diversify housing options
- Enhance or support workforce training
- Develop mobility hub pilot program
- Enhance City bike facilities
- Promote and enhance employer commute incentive programs
- Develop policies to facilitate transit oriented development

Did you know ... ?

- We use 18,500,000 barrels of oil – roughly 2.5 gallons per person – every day in the U.S., nearly double the next highest user.
- In Hillsboro, roughly 30% of the energy we use comes from renewable sources (mostly hydro). The U.S. average use of renewables is around 10%.
- The decade of 2000-2010 was the warmest on record globally, and 2005 and 2010 are tied for the warmest years on record.

Cobb Weather Station at PCC Rock Creek

GOAL AREA:

RESOURCE CONSERVATION

Overview

Maintenance of water, land and air resources is critical to the long term livability of our community. As our population grows, impacts to natural systems increase, and resources become both scarcer and more expensive to deliver. An abundant water supply, clean air, and thriving ecosystems have long contributed to the high quality of life we appreciate in western Oregon, and they give our economy a competitive edge. The sustained health of these systems will require effective conservation, coordinated planning and community education. We need to protect what we have, and restore what we can if we are to preserve our legacy and ensure future generations (human and wildlife) continue to prosper.

Hillsboro's Resource Conservation Goals

- Enhance understanding of the importance of natural assets and ecosystem services
- Protect and enhance environmental assets (air, land, water and habitat)
- Foster healthy human and wildlife populations

Jackson Bottom Wetlands Preserve

Hillsboro's indicators and targets for resource conservation include:

Indicator	Target	Target Year	Baseline	Baseline Year
8. # of in-stream miles preserved, restored and/or under natural treatment within the Rock Creek and McKay Creek drainages	Net annual increase in # of in-stream miles under riparian cover within the Rock and McKay Creek drainages	N/A	835 Acres	2014
9. % reduction in daily residential water use	40% reduction (58 GPCPD)	2025	97 GPCPD	2002
10. % potable water loss prevented	Maintain annual water system losses below 10%	N/A	3%	2013
11. # of privately owned upland areas of land under active management in McKay watershed	Net annual increase	N/A	TBD	TBD
12. # of diverse bird and amphibian species present at key locations	No net decline in species diversity	N/A	TBD	TBD
13. # of residents and/or homeowners participating in some form of natural resource conservation activity or educational programming (e.g., planting, invasive species removal, water conservation, wetlands education programs	Net annual increase	N/A	TBD	TBD
14. a. # of businesses and institutions participating in some form of natural resource conservation activity or educational programming (e.g., waste prevention, recycling, green procurement, toxics reduction)	Net annual increase	N/A	TBD	TBD
14. b. # of businesses receiving County Green Business Award	Net annual increase	N/A	28	2015
15. # of annual days 'Moderate' and 'Unhealthy for Sensitive Groups (UFSG)' particulates and ozone AQI	Decrease # of days to 0	2025	Moderate AQI: 49 UFSG AQI: 6	2011

Potential Projects and Policies

The following is a list of actions that implementation stewards may seek to pursue over the next five years:

- Implement tree planting campaign with non-profit partners
- Implement flow restoration during summer
- Promote golf course eco-certification
- Promote Eco Biz certification program to local organizations
- Conduct residential water conservation and education programs
- Install automated water meters
- Conduct water leak surveys
- Replace water conveyance lines system-wide
- Coordinate with Metro, Clean Water Services and other agencies that provide land owner education and incentives
- Monitor bird diversity
- Monitor amphibian diversity
- Conduct education programs such as community garden Water Wise program, sustainable food production/education, etc.
- Develop or promote sustainability awards program
- Develop Hillsboro commercial irrigation water conservation incentive program
- Facilitate adoption of Green Schools principles in Hillsboro School District
- Implement mandatory winter open burn ban
- Implement wood burn curtailment during poor air quality periods
- Develop idling reduction campaign

Epson bioswale

Did you know ... ?

- Almost 80 percent of Earth is covered with water, but only 3 percent is fresh water available for drinking.
- By keeping showers under five minutes, a family of four can save over 1,000 gallons of water monthly.
- The global human population growth rate is roughly 220,000 net people per day, adding more than the equivalent of two Hillsboro's every day.

Clean Water Services' Tree for All tree planting campaign

GOAL AREA:

RESOURCE RECOVERY & RENEWAL

Overview

Science continually presents new ways to recover and renew what was once discarded and replaced. Today, we do a lot more than recycle newspaper and tin cans. There are programs to recycle electronics, food waste and many other materials. How effective those programs are will depend in part on how well we educate consumers, what steps we take to help recycled product markets succeed and what personal commitment each of us is willing to make. One thing is for sure: the less waste we create, the less we spend on raw materials and environmental impacts.

Before recycling, we also have an opportunity to recover and reuse many of the materials we use. Reclaimed water can be used to elevate stream levels, serve industrial operations and irrigate parks and natural areas (to name just a few options). Better purchasing practices can reduce the amount of materials that we buy and ultimately dispose. An important goal for the future will be to identify and implement additional opportunities to reduce our consumption and our waste.

Hillsboro's Resource Recovery Goals

- Reduce waste stream volumes
- Repurpose current waste stream elements for beneficial use
- Pursue a "one-water"[1] use and reuse strategy

Hillsboro's indicators and targets for resource recovery and renewal include:

Indicator	Target	Target Year	Baseline	Baseline Year
16. Total tons per capita solid waste collected by franchised waste haulers	5% reduction (1,786)	2025	1,880	2014
17. Amount of solid waste recovered (i.e., recycling, composting, waste to energy)	40% recovery rate of materials collected by franchised haulers[2]	2025	30%	2014
18. Percentage of water naturally treated before entering stream system	Net increase in # of projects completed or underway to enhance water pretreatment	N/A	425	2014
19. Gallons of water reclaimed for beneficial use	Net increase	N/A	86 million	2013

[1] *'One Water' is a concept that encourages the planning, management, allocation and use of water to broadly consider all of the increasing demands for clean water locally, regionally and globally.*

[2] *This indicator includes only data reported by the franchised waste haulers. Other relevant recovery data may be incorporated in the future, but at this time it is not reasonably or practically measurable.*

Potential Projects and Policies

The following is a list of actions that implementation stewards may seek to pursue over the next five years:

- Promote mail opt-out programs
- Encourage proper backyard composting (yard waste and vegetative food)
- Encourage use of non-disposable (durable) goods at businesses (pallets, food service-ware, shipping packaging)
- Promote reuse projects (donation from homes; goods swap at multifamily communities; building materials reuse and donation; ResourceFull Use for business program)
- Coordinate with haulers to develop new metrics to better track performance
- Increase household participation in curbside recycling (mixed recyclables, glass and organics)
- Promote participation in Recycle at Work (RAW) program
- Encourage compliance with Business Recycling Requirement (BRR)
- Ensure households at multifamily communities have access to adequate mixed recycling and glass collection service
- Identify recycling options for other materials
- Track and promote deconstruction over demolition
- Offer incentives for buildings that meet recovery goals
- Promote the Construction and Demolition (C&D) toolkit
- Set up permanent green/resource efficient building kiosk in Permit Center lobby
- Adopt equitable solid waste service rate structure that incentivizes food scrap separation and collection
- Provide technical assistance to set up food scrap collection through RAW program
- Capture grease for anaerobic digester use
- Encourage businesses to adopt RAW practices regarding waste prevention
- Install green infrastructure in developing portions of Hillsboro where appropriate; retrofit existing areas where possible
- Promote community/neighborhood/business/school rain garden projects
- Promote wetland restoration projects
- Develop sustainable development incentives/rules into code for new development
- Conduct reclaimed water pilot project

Did you know ... ?

- Oregon recycling programs led to energy savings of more than 30 trillion BTUs in 2013.
- Portland-Metro residents and businesses send 1 million tons of material to the landfill each year. Half of that material could be recycled or composted.
- Approximately 40 percent of edible food is thrown away before it is eaten.
- Water reclamation (highly treated wastewater) decreases pollution sent to sensitive environments, and can enhance wetlands and wildlife habitat.

Hillsboro Garbage Disposal waste transfer station

IMPLEMENTATION, OVERSIGHT AND REPORTING STRUCTURE

Hillsboro Sustainability Task Force

The Hillsboro Sustainability Task Force (HSTF) will continue to serve in an oversight and support capacity for the preliminary stages of implementation. This structure may be amended by the Task Force in the future, should it find any such adjustment to better facilitate data tracking, reporting and overall implementation progress. HSTF roles and responsibilities include:

- Help to secure implementation partners and identify monitoring data sources
- Facilitate solutions when implementation partners encounter challenges
- Revise, remove or add new indicators and projects annually (as necessary)
- Oversee development of an annual report to City Council and the broader community
- Periodically update the implementation program
- Attend periodic meetings to ensure continuity and progress

Day to day activities and HSTF support will be coordinated by the City of Hillsboro City Manager's Office. The City will also work with HSTF members and implementation stewards to gather data and produce the annual progress report.

ESP Implementation Stewards

ESP implementation stewards have voluntarily committed to one or more projects or policies adopted as part of the Plan. Steward responsibilities include:

- Facilitate implementation of their project or policy
- Coordinate with other partner organizations as necessary to advance their project
- Provide annual status updates regarding action progress
- Periodically present information to the HSTF to encourage learning and cross-collaboration

Implementation stewards are identified in the Hillsboro 2035 Community Plan.

Task Force members

DATA LIMITATIONS AND
METHODOLOGIES

While the HSTF has attempted to identify indicators and targets that will help track our progress toward becoming a more sustainable community, it acknowledges there is no "perfect" way to do so. A survey of peer communities and organizations reveals that both the definition and measurement of sustainability are widely divergent from one place to another. The HSTF is hopeful that the indicators selected for the ESP will provide an effective system for evaluating conditions in Hillsboro (and surrounding airsheds and watersheds). Some indicators will stand the test of time, others may not. In some cases, data is not collected for some of the indicators we'd like to track. Because the ESP is a living document with ongoing oversight, any shortcomings can be addressed as they are identified.

Intermodal Transit Facility Solar Panels

ENVIRONMENTAL SUSTAINABILITY PLAN

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